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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,623	08/05/2003	Kazunori Sakurai	105943.01	5364
25944	7590	09/08/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			WOOD, KEVIN S	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/633,623

Applicant(s)

SAKURAI ET AL.

Examiner

Kevin S Wood

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is responsive to the Applicant's Amendment filed 14 June 2004. Claims 2-9 are amended and new claims 10-11 have been added. Claims 1-11 are pending in the application.

### ***Response to Arguments***

2. Applicant's arguments, filed 14 June 2004, with respect to the rejections/objection of claims 1-9 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 6,668,125 to Go.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the semiconductor chip is electrically connected to the optical element. Is the optical element an opto-electrical element? Or is the semiconductor chip only optically connected to the optical element? For the purposes of examination, the examiner will assume that it was meant that the optical element is an opto-electronic element.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 4, 6, 7, 9 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,668,125 to Go.

6. Referring to claim 1, Go discloses all the limitations of the claimed invention. Go discloses an optical module including: an optical waveguide (16); an optical element (12) having an optical section; a semiconductor chip (11) electrically connected to the optical element; a substrate (2) having a first surface (top) and a second surface (bottom), the substrate supporting the semiconductor chip and the optical element on the first surface; an interconnect pattern (8) formed on the first surface, the interconnect pattern electrically connected to the semiconductor chip; and external terminals (62a,62b) provided over the second surface, the external terminals electrically connected to the interconnect pattern. See Fig. 1-17, along with their respective portions of the specification.

Referring to claims 3 and 4, Go discloses all the limitations of the claimed invention. Go discloses that the optical element (12) and the semiconductor chip (11)

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are packaged. See Fig. 16. Go also discloses that the optical element (12) and the semiconductor chip (11) are sealed with a resin (52).

Referring to claim 6, Go discloses all the limitations of the claimed invention. Go discloses a transparent underfill material (39) between the optical element (12) and the semiconductor chip (11). See Fig. 1-17.

Referring to claim 7, Go discloses all the limitations of the claimed invention. Go discloses the semiconductor chip (11) has an internal circuit for driving the optical element (12). See Fig. 1-17.

Referring to claim 9, Go discloses all the limitations of the claimed invention. Go discloses the interconnect pattern (8) is connected to the optical element (12). See Fig. 1-17.

Referring to claim 11, Go discloses all the limitations of the claimed invention. Go discloses the substrate is conductive and includes an insulative material (52). See Fig. 1-17.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. U.S. Patent No. 6,668,125 to Go.

Referring to claims 2 and 10, Go discloses all the limitations of the claimed invention, except Go does not appear to specifically disclose that the external terminals (62) are electrically connected to the interconnect pattern (8) via through holes in the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to pass the electrical leads connecting the interconnect pattern (8) to the external terminals (63) through the since it has been held that a mere rearrangement of essential components of a device involves only routing skill in the art. In re Japikse, 86 USPQ 70.

Referring to claim 8, Go discloses all the limitations of the claimed invention, except Go does not appear to specifically disclose the semiconductor chip and the optical element are stacked. Instead Go discloses that the semiconductor chip and the

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optical element are arranged side by side. It would have been obvious to one having ordinary skill in the art at the time the invention was made to stack the semiconductor chip with the optical element, since it has been held that a mere rearrangement of essential components of a device involves only routing skill in the art. In re Japikse, 86 USPQ 70.

### ***Allowable Subject Matter***

10. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (571) 272-2364. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KSW

  
AKM ENAYET ULLAH  
PRIMARY EXAMINER